1. (Thrice Amended) A recombinant DNA encoding an immunogenic fusion protein, wherein said recombinant DNA comprises a sequence (1) coding for a polypeptide heterologous with respect to a filamentous hemagglutinin of *Bordetella* (Fha) fused in the same reading frame with a sequence (2) placed upstream from said sequence (1), said sequence (2) coding for at least a part of the precursor of the Fha, this part comprising the site of interaction of the Fha with heparin.

7. (Four Times Amended) The recombinant DNA according to claim 4, wherein the extension of the sequence (2) towards its C-terminus will not exceed the length which would cause the transformation of *B. pertussis* with this recombinant DNA then placed under the control of a promoter capable of being recognized by *B. pertussis* to no longer permit the direct excretion of the recombinant protein then formed into the culture medium of this *B. pertussis*.

34. (Amended) A recombinant DNA comprising a sequence (1) coding for a polypeptide heterologous with respect to a filamentous hemagglutinin of *Bordetella* (Fha) fused in the same reading frame with a sequence (2) placed upstream from said sequence (1), said sequence (2) coding for at least a

part of the precursor of the Fha, this part comprising the site of interaction of the Fha with heparin, wherein the resulting fusion protein facilitates the presentation of the antigen encoded by the heterologous sequence (1) to the mucosal immune system.

40. (Amended) A culture of bacterial cells belonging to a bacterial species other than *Bordetella* and transformed by a recombinant DNA comprising a sequence (1) coding for a polypeptide heterologous with respect to a filamentous hemagglutinin of *Bordetella* (Fha), said sequence (1) being fused in the same reading frame with a sequence (2) placed upstream from said sequence (1), said sequence (2) coding for at least a part of the precursor of the Fha, this part comprising the site of interaction of the Fha with heparin.

Add the following new claim.

42. (New) The culture of bacterial cells according to claim 40 wherein said polypeptide heterologous with respect to a filamentous hemagglutinin of *Bordetella* (Fha) has vaccinating properties against a given pathogenic agent, and said part of the precursor of the Fha comprises